

Proximity Sensors Capacitive Polypropylene Housing Type CA, M18, DC

TRIPLESHIELD™

CARLO GAVAZZI



- Featuring **TRIPLESHIELD™** sensor protection
- Adjustable sensing distance 3-8 mm or 3-12 mm
- Rated operational voltage: 10-40 VDC
- Output: DC 200 mA, NPN or PNP
- Make and break switching function
- LED indication
- High noise immunity
- Flush and non-flush types
- Cable versions

Product Description

Capacitive proximity switches with either sensing distance 8 mm flush mounted in metal or sensing distance 12 mm non-flush mounted. 4-wire DC output with both make (NO) and break (NC) switching.

Black M18 polypropylene housing with 2 m cable. Ideal for use in level applications in chemical, semi-conductor and food & beverage industries.

Ordering Key

CA 18 HLF 08 NA

Type	CA
Housing style	18
Housing size	HLF
Housing material	08
Housing length	NA
Detection principle	
Sensing distance	
Output type	
Output configuration	

Type Selection

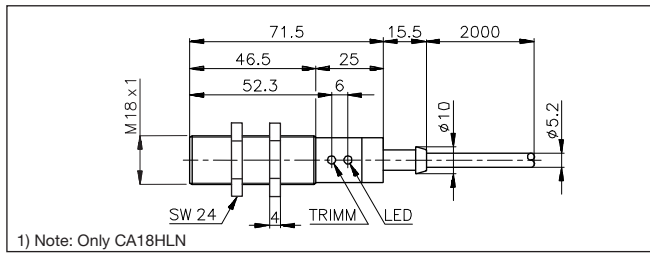
Housing diameter	Rated operating dist. (S _n) ¹⁾	Mounting	Ordering no. Transistor NPN Make & break switching	Ordering no. Transistor PNP Make & break switching
M18	8 mm	Flush (built-in)	CA18HLF08NA	CA18HLF08PA
M18	12 mm	Non-flush	CA18HLN12NA	CA18HLN12PA

¹⁾ Object: Grounded steel plate

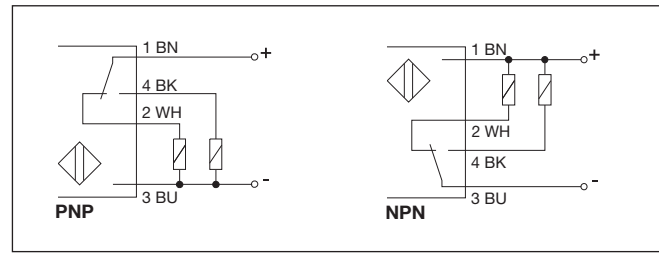
Specifications

Rated operating dist. (S_n) CA18HLF08	3 to 8 mm factory set at 8 mm	Frequency of operating cycles (f)	30 Hz
CA18HLN12	3 to 12 mm factory set at 12 mm	Indication for output ON	LED, yellow
Sensitivity	Adj. 270° turn pot. meter	Environment Degree of protection	IP 67 (Nema 1, 3, 4, 6, 13)
Effective operation dist. (S_r)	0.9 x S _n ≤ S _r ≤ 1.1 x S _n	Temperature Operating temperature Storage temperature	-25° to +80°C (-13° to +176°F) -40° to +85°C (-40° to +185°F)
Usable operation dist. (S_u)	0.8 x S _r ≤ S _u ≤ 1.2 x S _r	Housing material Body, front, nuts	Black polypropylene
Repeat accuracy (R)	≤ 5%	Connection Cable	Black, 2 m, 4 x 0.34 mm ² Polypropylene
Hysteresis (H)	4 to 20% of sensing distance	Weight	110 g
Rated operational volt. (U_B)	10 to 40 VDC (ripple included)	CE-marking	Yes
Ripple	≤ 10%		
Rated operational current (I_e) Continuous	≤ 200 mA		
No-load supply current (I_o)	≤ 10 mA		
Voltage drop (U_d)	≤ 2.5 VDC at max. load		
Protection	Reverse polarity, short-circuit, transients		

Dimensions



Wiring Diagrams

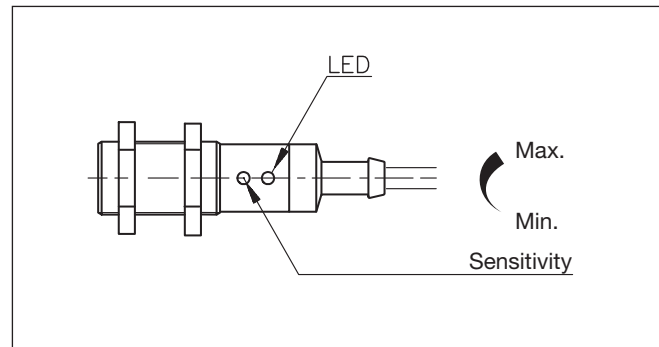


Adjustment Guide

The environments in which capacitive sensors are installed can often be unstable regarding temperature, humidity, object distance and industrial (noise) interference. Because of this, Carlo Gavazzi offers as standard features in all TRIP-LESHIELD™ capacitive sensors a user-friendly sensitivity adjustment instead of having a fixed sensing range, extended sensing range to accom-

modate mechanically demanding areas, temperature stability to ensure minimum need for adjusting sensitivity if temperature varies and high immunity to electromagnetic interference (EMI).

Note: Sensors are factory set (default) to maximum rated sensing range.



Installation Hints

Capacitive sensors have the unique ability to detect almost all materials, either in liquid or solid form. Capacitive sensors can detect metallic as well as non-metallic objects, however, their traditional use is for non-metallic materials such as:

- **Chemical Industry**
Cleansers, fertilisers, liquid soaps, corrosives and petrochemicals.
- **Semi-conductor Industry**
- **Food & Beverage**

- **Packaging Industry**
Package inspection for level or contents, dry goods, fruits and vegetables, dairy products.

Materials are detected due to their dielectric constant. The bigger the size of an object, the higher the density of ma-

terial, the better or easier it is to detect the object. Nominal sensing distance for a capacitive sensor is referenced to a grounded metal plate (ST37). For additional information regarding dielectric ratings of materials please refer to Technical Information.

<p>To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables</p>	<p>Relief of cable strain</p> <p>Incorrect</p> <p>Correct</p> <p>Bending radius ≥ 7.5 cm</p> <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p> <p>A proximity switch should not serve as mechanical stop</p>	<p>Switch mounted on mobile carrier</p> <p>Bending radius ≥ 7.5 cm</p> <p>Any repetitive flexing of the cable should be avoided</p>
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Delivery Contents

- Capacitive switch: CA18HL...
- Screw driver
- 2 nuts
- **Packaging:** Cardboard box
- Installation & Adjustment Guide